IN THE CLAIMS:

Please cancel claims 1-15, without prejudice, and add new claims 16-29 as follows.

Claims 1-15. (Cancelled).

16. (New) A method of creating a three-dimensional model of a tangible existing object, the method comprising:

digitizing the object to create a polygon mesh of the object;

breaking the polygon mesh into separate bilinear NURBS patches; and

uniting the bilinear NURBS patches to form a continuous surface composite of the bilinear NURBS patches to obtain a surface model or solid model of the object.

17. (New) A method according to claim 16, wherein the step of digitizing comprises obtaining the polygon mesh from point cloud data of the object.

18. (New) A method according to claim 16, wherein the breaking step comprises breaking the polygon mesh into triangular bilinear NURBS patches.

19. (New) A method according to claim 16, further comprising the step generating a finite element model from the surface model or solid model.

20. (New) A method according to claim 16, wherein said uniting comprises stitching the bilinear NURBS patches together.

21. (New) An apparatus for creating a three-dimensional model of a tangible existing object, the apparatus comprising:

a digitizer for creating a polygon mesh of the object; and

a data processor for executing the data processing steps of reading the polygon mesh; breaking the polygon mesh into separate bilinear NURBS patches; and uniting the bilinear NURBS patches to form a continuous surface composite of the bilinear NURBS patches to obtain a surface model or solid model of the object.

22. (New) An apparatus according to claim 21, wherein the data processor generates a finite element model of the object from the surface model or solid model.

23. (New) An apparatus according to claim 21, wherein the data processing steps are executed in the data processor by software routines.

24. (New) An apparatus according to claim 21, wherein said uniting comprises stitching the bilinear NURBS patches together.

25. (New) A computer program embodied on a computer-readable medium, said computer program for creating a three-dimensional model of a tangible existing object, the computer program executing the following data processing steps by software routines when it runs on a computer: reading a polygon mesh of the object; breaking the polygon mesh into separate bilinear NURBS patches; and uniting the NURBS patches to form a continuous surface composite of the bilinear NURBS patches to obtain a surface model or solid model of the object.

26. (New) A computer program according to claim 25, which creates the separate bilinear NURBS patches by breaking the polygon mesh into the bilinear NURBS patches through conversion into IGES format.

27. (New) A computer program according to claim 26, wherein the polygon mesh converted into the IGES format comprises exclusively surface elements of IGES entity #128.

28. (New) A computer program according to claim 25, which generates a finite element model of the object from the surface model or solid model through CAD-FEM coupling.

29. (New) A computer program according to claim 25, wherein said uniting comprises stitching bilinear NURBS patches together.